CONTENTS 1989

JANUARY

1 **Percutaneous Dorsal Column Stimulator for Chronic Pain Control**
Gabor B. Racz, Robert F. McCarron, and Paul Talboys

5 **Simulift: A Simulation Model of Human Trunk Motion**
Charles H. Reilly and William S. Marras

12 **Enhancement of Lumbar Spine Fusion by Use of Translaminar Facet Joint Screws**
Rae R. Jacobs, Pasquale X. Montesano, and Roger P. Jackson

16 **Methylprednisolone in Spinal Cord Compression**
Patrick W. Hitchon, Thomas C. McKay, T. Thornton Wilkinson, Richard A. Girton, III, Todd Hansen, and Gregg N. Dyste

23 **Pathogenesis of Spinal Cord Injury and Newer Treatments: A Review**
Luke Janssen and Robert R. Hansebout

33 **Comparison of CT Scan Muscle Measurements and Isokinetic Trunk Strength in Postoperative Patients**
Tom G. Mayer, Heikki Vanharanta, Robert J. Gatchel, Vert Mooney, Dennis Barnes, Linda Judge, Sue Smith, and Arthur Terry

37 **Clinical Presentation of Spinal Cord Concussion**
Marc R. Del Bigio and Garth E. Johnson

41 **Surgical Treatment of Metastatic Tumors of the Spine**
Shohei Manabe, Akio Tateishi, Mitsutoshi Abe, and Tohgo Ohno

48 **Surgical Treatment of Isthmic Lumbosacral Spondylolisthesis: Analysis of Variables Influencing Results**
Edward N. Hanley, Jr., and Jon A. Levy

51 **Estimation of Lumbar Disc Areas by Means of Anthropometric Parameters**
D. Colombini, E. Occhipinti, A. Grieco, and M. Faccini

56 **Intra- and Postoperative Complications in Lumbar Disc Surgery**
Dietmar Stolke, Wolf-Peter Sollmann, and Volker Seifert

60 **A Cross-Sectional Prevalence Study of Lumbar Disc Degeneration in a Working Population**
William Evans, William Jobe, and Charles Seibert

65 **The Influence on Spinal Cord Evoked Potentials of Chymopapain Applied to the Rat Lumbar Spine Canal**
P. Wehling, M. A. Pak, S. J. Cleveland, and K. P. Schulitz

68 **Experimental Instability in the Rabbit Lumbar Spine**
Ian A. F. Stokes, David F. Counts, and John W. Frymoyer

73 **Concordance of Back Surface Asymmetry and Spine Shape in Idiopathic Scoliosis**
Ian A. F. Stokes and Morey S. Moreland

79 **Limited Surgical Discectomy and Microdiscectomy: A Clinical Comparison**
Neil Kahanovitz, Kathleen Viola, and John Muculloch

82 **Computed Tomographic Investigation of the Effect of Traction on Lumbar Disc Herniations**
Dilek Onel, Muhlis Tuzlaci, Hidayet Sari, and Kemal Demir

91 **Reconstruction of the Lumbar Spine Using AO DCP Plate Internal Fixation**
John S. Thalgott, Henry LaRocca, Max Aebi, Anthony P. Dwyer, and Bruce E. Razza

96 **Strain in Fibers of a Lumbar Disc: Analysis of the Role of Lifting in Producing Disc Prolapse**
A. Shirazi-Adl

104 **Briefly Noted: Bowel Perforation following Microsurgical Lumbar Discectomy: A Case Report**
Arnold M. Schwartz and Jerald S. Brodkey

106 **Briefly Noted: Spinal Epidural Abscess following Steroid Injection for Sciatica: Case Report**
Sze-Tong Chan and Samuel Leung

108 **Briefly Noted: Acute Massive Dural Compression Secondary to Methyl Methacrylate Replacement of a Tumorous Lumbar Vertebral Body**
Michael Glen Dolin

110 **Briefly Noted: Postoperative Lordoscoliosis Causing Extrinsic Compression of the Right Main Stem Bronchus and Respiratory Insufficiency: A Case Report**
Giles Scuderi, Don P. Sanders, Robert M. Brustowicz, Charles B. Berde, Andrew Colin, Julian Allen, Gerald B. Healy, and John E. Hall

114 **Briefly Noted: Spontaneous Unstable Burst Fracture of the Thoracolumbar Spine in Osteoporosis: A Report of Two Cases**
Robert A. Arciero, Kenneth Y. K. Leung, and John H. Pierce

118 **Briefly Noted: The Perpendicular Nerve Root Sign**
Bruce R. Rosenblum

119 **Briefly Noted: Myelopathy Secondary to Spinal Epidural Lipomatosis: A Case Report**
Donald S. Soloniuk, Salvatore R. Pecoraro, and Frederick E. Munschauer

123 **Briefly Noted: Traumatic Lateral Atlanto-Occipital Dislocation with Spontaneous Bony Fusion: A Case Report**
V. Jevtich

125 **Briefly Noted: C6–7 Dislocation in a Neurologically Intact Neonate: A Case Report**
Robert F. McLain, Charles R. Clark, and George Y. El-Khoury

127 **Briefly Noted: Gas-Filled Intraspinal Synovial Cyst: A Case Report**
David F. Fardon and John D. Simmons

129 **Briefly Noted: Lateral Thoracic Meningocele Associated with Neurofibromatosis: Total Excision by Posterolateral Extradural Approach: A Case Report**
Chee Pin Chee

132 **Briefly Noted: Traumatic Retrolisthesis of the Lumbosacral Junction: A Case Report**
Sheldon L. Cohn, Louis Keppler and Behrooz A. Akbarnia

134 **Briefly Noted: Failure to Diagnose Conus Ependymomas by Magnetic Resonance Imaging**
Nancy E. Epstein, Subodh Bhuchar, Robert Gavin, Roger Hyman, and Joseph Zito

137 **Briefly Noted: Acro-Osteolysis of the Fingers in a Spinal Cord Injury Patient: A Case Report**
Gary Marmolya, Rauf Yagan, and Alvin Freehafer

140 **Meetings of Interest for Spine Physicians and Surgeons**

FEBRUARY
EUROPEAN EDITION

141 **A Prospective Study of the Role of Cardiovascular Risk Factors and Fitness in Industrial Back Pain Complaints**
Michele C. Battié, Stanley J. Bigos, Lloyd D. Fisher, Tommy H. Hansson, Alf L. Nachemson, Dan M. Spengler, Mark D. Wortley, and Judith Zeh

148 **Patient-Handling Skill, Back Injuries, and Back Pain: An Intervention Study in Nursing**
T. Videman, H. Rauhala, S. Asp, K. Lindström, G. Cedercreutz, M. Kämppi, S. Tola, and J. D. G. Troup

157 **Functional Restoration with Behavioral Support: A One-Year Prospective Study of Patients with Chronic Low-Back Pain**
Rowland G. Hazard, James W. Fenwick, Steven M. Kalisch, Jill Redmond, Virginia Reeves, Sheila Reid, and John W. Frymoyer

162 **Movements of the Sacroiliac Joints: A Roentgen Stereophotogrammetric Analysis**
Bengt Sturesson, Göran Selvik, and Alf Udén

166 **Biochemical and Structural Properties of the Cartilage End-Plate and its Relation to the Intervertebral Disc**
S. Roberts, J. Menage, and J. P. G. Urban

175 **Measurement of Human Lumbar Spine Ligaments during Loaded and Unloaded Motion**
Achim Hedtmann, Reinhard Steffen, Johannes Methfessel, Dietmar Kolditz, Jürgen Krämer, and Manfred Thols

186 **The Geometry of the Muscles of the Lumbar Spine Determined by Magnetic Resonance Imaging**
Moira F. Tracy, Michael J. Gibson, E. Paul Szypryt, Andrew Rutherford, and E. Nigel Corlett
194 **Spinal Stability and Intersegmental Muscle Forces: A Biomechanical Model**
Manohar Panjabi, Kuniyoshi Abumi, Joanne Duranceau, and Thomas Oxland
201 **Physical Activity and the Strength of the Lumbar Spine**
R. W. Porter, M. A. Adams, and W. C. Hutton
204 **Low-Back Pain and Occupation: A Cross-Sectional Questionnaire Study of Men in Machine Operating, Dynamic Physical Work, and Sedentary Work**
Hilkka Riihimäki, Sakari Tola, Tapio Videman, and Kari Hänninen
210 **Low-Back Pain after Lumbar Fusion: Surgical and Computed Tomographic Analysis**
Erkki M. Laasonen and Juhani Soini
214 **Cauda Equina Lesions following Fusion in Situ and Decompressive Laminectomy for Severe Spondylolisthesis: Four Case Reports**
H. D. Maurice and T. R. Morley
217 **Spinal Mobility in Adolescent Girls with Idiopathic Scoliosis and in Structurally Normal Controls**
Mikko Poussa, Helena Härkönen, and Guy Mellin
220 **Correction of Body Height in Scoliotic Patients Using ISIS Scanning**
A. J. Carr, R. J. Jefferson, I. Weisz, and A. R. Turner-Smith
223 **Current Considerations in the Management of Neoplastic Spinal Cord Compression**
Tali Siegal and Tzony Siegal
229 **Segmental Wiring for Spinal Deformity: A Morbidity Report**
John Dove
232 **Transabdominal Ultrasound Measurement of the Lumbar Spinal Canal: Its Value for Evaluation of Lumbar Spinal Stenosis**
Osmo Tervonen and John Koivukangas
236 **Briefly Noted: Non-osseous Dural Compression in Rheumatoid Atlanto-Axial Subluxation**
Yoshihiko Hotta, Hiroshi Katoh, Jinichi Watanabe, Hirohiko Azuma, and Nobuyuki Tsuzuki
241 **Briefly Noted: Meningeal Skin Fistula: A Complication following Harrington Rod Instrumentation and Segmental Wiring**
A. G. Christodoulou, B. J. Preston, and J. K. Webb
243 **Briefly Noted: Fibrous Dysplasia of the Axis: A Case Report**
A. N. Stirrat, I. S. Fyfe, and C. J. Fisher
246 **Meetings of Interest for Spine Surgeons and Physicians**

MARCH

247 **Pull-Off Strength of Gardner-Wells Tongs from Cadaveric Crania**
Martin H. Krag, William Byrt, and Malcolm Pope
251 **Comparison of Halo Complications in Adults and Children**
Jeffrey A. Baum, Edward N. Hanley, Jr., and Joseph Pullekines
253 **Validity of Clinical Tests in the Diagnosis of Root Compression in Cervical Disc Disease**
E. Viikari-Juntura, M. Porras, and E. M. Laasonen
258 **Method for Determining Vertebral Body Positions in the Sagittal Plane Using Skin Markers**
J. Tim Bryant, J. Gavin Reid, Brenda L. Smith, and Joan M. Stevenson
266 **The Spine as an Arch: A New Mathematical Model**
R. M. Aspden
275 **The Comparative Results of Treatment in Idiopathic Thoracolumbar and Lumbar Scoliosis Using the Harrington, Dwyer, and Zielke Instrumentations**
K. D. K. Luk, J. C. Y. Leong, L. Reyes, and L. C. S. Hsu

281 **Luque Fixation to the Sacral Ala Using the Dunn-McCarthy Modification**
Richard E. McCarthy, Harold Dunn, and Frances L. McCullough

284 **Treatment of Hematogenous Pyogenic Vertebral Osteomyelitis with Anterior Debridement and Primary Bone Grafting**
Sanford E. Emery, Donald P. K. Chan, and H. Randal Woodward

292 **Magnetic Resonance Imaging of Spinal Injury**
Patrick T. Tracy, Robert M. Wright, and William C. Hanigan

302 **Connective Tissue Changes of the Multifidus Muscle in Patients with Lumbar Disc Herniation: An Immunohistologic Study of Collagen Types I and III and Fibronectin**
Matti Lehto, Matti Hurme, Hannu Alaranta, Sakari Einola, Björn Falck, Markku Järvinen, Hannu Kalimo, Mikko Mattila, and Leo Paljärvi

310 **A Comparison of Actual and Apparent Lumbar Lordosis in Black and White Adult Females**
Eileen A. Mosner, Jean M. Bryan, Margaret A. Stull, and Ronald Shippee

315 **Occupational Low-Back Injury in A Hospital Employee Population: An Epidemiologic Analysis of Multiple Risk Factors of a High-Risk Occupational Group**
L. Alicia Ryden, Craig A. Molgaard, Sandra Bobbitt, and John Conway

321 **Pain Response Post-Chemonucleolysis or Disc Excision**
Mark D. Brown and Janet S. Tompkins

327 **Roentgenographic Evaluation of Lumbar Spine Flexion–Extension in Asymptomatic Individuals**
Mark A. Hayes, Thomas C. Howard, Curtis R. Gruel, and Joseph A. Kopta

332 **Comparison of MRI to Contrast CT in the Diagnosis of Spinal Stenosis**
Brock Schnebel, Scott Kingston, Robert Watkins, and William Dillin

338 **No Clinical Effect of Back Schools in an HMO: A Randomized Perspective Trial**
Donald M. Berwick, Simon Budman, and Michael Feldstein

345 **Symptomatic Spondylolisthesis in Adults: Four Decades Later**
David M. Apel, Mark A. Lorenz, and Michael R. Zindrick

349 **Briefly Noted: Metastatic Pheochromocytoma of the Cervical Spine**
Jeffrey J. Olson, Christopher M. Loftus, and Patrick W. Hitchon

351 **Briefly Noted: Intravertebral Vacuum Cleft in the Fifth Lumbar Vertebra**
Kazuhiko Hashimoto, Natsuo Yasui, Masaaki Yamagishi, Haruo Kojimoto, Ken Mizuno, and Yutaka Shimomura

355 **Meetings of Interest for Spine Physicians and Surgeons**

APRIL

NORTH AMERICAN SPINE SOCIETY EDITION

357 **The North American Spine Society, Third Annual Meeting, Colorado Springs, Colorado, July 24–27, 1988**

358 **Fusions and Transfusions: An Analysis of Blood Loss and Autologous Replacement During Lumbar Fusions**
Robert G. Johnson, Mark Murphy, and Mark Miller

363 **Intraspinal Narcotic Analgesia: A Comparison of Two Methods of Postoperative Pain Relief**
Robert G. Johnson, Mark Miller, and Mark Murphy

367 **Anatomic Analysis of Pedicle Cortical and Cancellous Diameter as Related to Screw Size**
G. R. Misenhimer, R. D. Peek, L. L. Wiltse, S. L. G. Rothman, and E. H. Widell, Jr.

373 **The AO Spinal Internal Fixator**
Stephen I. Esses

379 **Anterior Stabilization, Instrumentation, and Decompression for Post-Traumatic Kyphosis**
John P. Kostuik and Heromi Matsusaki

387 **Intraoperative Ultrasonography for Reduction of Thoracolumbar Burst Fractures**
Kent A. Vincent, Daniel R. Benson, and John P. McGahan

391 **Histochemistry and Morphology of Erector Spinae Muscle in Lumbar Disc Herniation**
Xiong-Zeng Zhu, Mohamad Parnianpour, Margareta Nordin, and Neil Kahanovitz

398 **Healing Potential of the Anulus Fibrosus**
David Hampton, Gerald Laros, Robert McCarron, and Darrell Franks

402 **Long-Term Strength Assessment of Postoperative Discectomy Patients**
N. Kahanovitz, K. Viola, and M. Gallagher

404 **Dynamic EMG Analysis of Torque Transfer in Professional Baseball Pitchers**
Robert G. Watkins, Steven Dennis, William H. Dillin, Brock Schnebel, Gary Schneiderman, Frank Jobe, Harry Farfan, Jacqueline Perry, and Marilyn Pink

409 **A Database of Isoinertial Trunk Strength Tests against Three Resistance Levels in Sagittal, Frontal, and Transverse Planes in Normal Male Subjects**
Mohamad Parnianpour, Fan Li, Margareta Nordin, and Neil Kahanovitz

412 **The Importance of Pelvic Tilt in Reducing Compressive Stress in the Spine During Flexion-Extension Exercises**
S. Gracovetsky, M. Kary, I. Pitchen, S. Levy, and R. Ben Said

417 **Occult Infections Causing Persistent Low-Back Pain**
Leslie Schofferman, Jerome Schofferman, James Zucherman, Helen Gunthorpe, Ken Hsu, George Picetti, Noel Goldthwaite, and Arthur White

420 **Pain Provocation and Disc Deterioration by Age: A CT/Discography Study in a Low-Back Pain Population**
Heikki Vanharanta, Barton L. Sachs, Donna D. Ohnmeiss, Charles Aprill, Mark Spivey, Richard D. Guyer, Ralph F. Rashbaum, Stephen H. Hochschuler, Arthur Terry, David Selby, William J. Stith, and Vert Mooney

424 **Does Discography Injure Normal Discs?: An Analysis of Repeat Discograms**
Robert G. Johnson

427 **Psychosoicoeconomic Predictors of Treatment Success/Failure in Chronic Low-Back Pain Patients**
Dennis Barnes, Dan Smith, Robert J. Gatchel, and Tom G. Mayer

431 **Nonoperative Treatment of Herniated Lumbar Intervertebral Disc with Radiculopathy: An Outcome Study**
Jeffrey A. Saal and Joel S. Saal

438 **Acute Back Pain and Spasm: A Controlled Multicenter Trial of Combined Analgesic and Antispasm Agents**
John V. Basmajian

440 **The Use of Dexamethasone in Primary Lumbar Disc Surgery: A Prospective, Randomized, Double-Blind Study**
William C. Watters, III, Aileen P. Temple, and Michael Granberry

443 **Long-Term Results of Lumbar Spine Surgery Complicated by Unintended Incidental Durotomy**
A. Alexander M. Jones, J. L. Stambough, R. A. Balderston, R. H. Rothman, and R. E. Booth, Jr.

447 **Segmental ("Floating") Lumbar Spine Fusions**
Alexander E. Brodsky, Randall L. Hendricks, Momtaz A. Khalil, Bruce V. Darden, and Terri T. Brotzman

451 **Rationale for Spinal Fusion in Lumbar Spinal Stenosis**
Richard J. Nasca

455 **Tension Band Wiring-Bone Grafting for Spondylolysis and Spondylolisthesis: A Clinical and Biomechanical Study**
Mark Hambly, Casey K. Lee, Edward Gutteling, Mark C. Zimmerman, Noshir Langrana, and Young Pyun

461 **The Wiltse Pedicle Screw Fixation System: Early Clinical Results**
Alan Horowitch, Richard D. Peek, James C. Thomas, Jr., Eric H. Widell, Jr., Paul P. DiMartino, Curtis W. Spencer, III, James Weinstein, and Leon L. Wiltse

468 **Posterior Lumbar Interbody Fusion with Facet-Screw Fixation**
Thomas Stonecipher and Sanford Wright

472 **Complications with the Variable Spinal Plating System**
Thomas S. Whitecloud, III, James C. Butler, Jonathan L. Cohen, and Peter D. Candelora

477 **Spinal Bone Density Following Spinal Fusion**
H. J. Lipscomb, S. A. Grubb, and R. V. Talmage

480 **Meetings of Interest for Spine Physicians and Surgeons**

MAY

483 **The Psychological Impact of Idiopathic Scoliosis on the Adolescent Female: A Preliminary Multi-Center Study**
Neil Kahanovitz and Sherri Weiser

486 **Pulmonary Function Test Study and After Spinal Fusion in Young Idiopathic Scoliosis**
Sylvain Gagnon, Alain Jodoin, and Richard Martin

491 **Evaluation of the Role of Concave Rib Osteotomies in the Correction of Thoracic Scoliosis**
David C. Mann, Clyde L. Nash, Jr., Marianne R. Wilham, and Richard H. Brown

496 **The Failure of Ethylene Oxide Gas-Sterilized Freeze-Dried Bone Graft for Thoracic and Lumbar Spinal Fusion**
Larry D. Herron and Michael H. Newman

501 **Lifestyle and Low-Back Pain: The Influence of Smoking and Obesity**
Richard A. Deyo and J. Edward Bass

507 **Studies of the Modified Somatic Perceptions Questionnaire (MSPQ) in Patients with Back Pain: Psychometric and Predictive Properties**
Richard A. Deyo, Nicolas E. Walsh, Lawrence S. Schoenfeld, and Somayaji Ramamurthy

511 **The Development of the Dallas Pain Questionnaire: An Assessment of the Impact of Spinal Pain on Behavior**
G. Frank Lawlis, Ramon Cuencas, David Selby, and C. E. McCoy

517 **The Relationship of Low-Back Pain, Work History, Work Environment, and Stress: A Retrospective Cross-Sectional Study of 38- to 64-Year-Old Women**
Hans-Olof Svensson and Gunnar B. J. Andersson

523 **The Effect of Flexion-Extension Motion of the Lumbar Spine on the Capacity of the Spinal Canal: An Experimental Study**
Dai Liyang, Xu Yinkan, Zhang Wenming, and Zhou Zhihua

526 **Low-Back Pain and Straight Leg Raising in Children and Adolescents**
D. Mierau, J. D. Cassidy, and K. Yong-Hing

529 **Intradural Lumbar Disc Herniation: Report of Three Cases with a Review of the Literature**
Osamu Kataoka, Yasuro Nishibayashi, and Tomoya Sho

533 **Erratum**

534 **L4-5 Degenerative Spondylolisthesis: The Results of Treatment by Decompressive Laminectomy without Fusion**
Larry D. Herron and Anthony C. Trippi

539 **Briefly Noted: Multiple Spinal Fractures after Scoliosis Fusion with Harrington Rods**
Robert Thomas, Allen Carl, and Alan Moskowitz

541 **Briefly Noted: Pyogenic Infection of the Lumbar Vertebral Spine Due to Gas-Forming Organisms: A Case Report**
R. W. Charles, G. M. Mody, and S. Govender

543 **Briefly Noted: A Localized Lumbar Spinal Root Arteriovenous Malformation Presenting with Radicular Signs and Symptoms**
Rosemaria Gennuso, Rosario A. Zappulla, and Scott W. Strenger

546 **Briefly Noted; Migrating Spinal Pseudarthrosis in the Spine Affected by Ankylosing Spondylitis**
Eric Ho, F. L. Chan, and John C. Y. Leong

549 **Briefly Noted: Malignant Schwannoma (Neurofibrosarcoma) Metastatic to Spine: Surgical Decompression and Stabilization**
George R. Cybulski, John A. Greager, Thomas Gleason, Marc G. Reyes, and M. Fayez Homsi

552 **Meetings of Interest for Spine Physicians and Surgeons**

JUNE

EUROPEAN EDITION

555 **Editorial Comment: Lumbar Discography—Where Are We Today?**
Alf Nachemson

558 **Intervertebral Foramen Venous Obstruction: A Cause of Periradicular Fibrosis?**
Judith A. Hoyland, A. J. Freemont, and M. I. V. Jayson

569 **Edema Formation in Spinal Nerve Roots Induced by Experimental, Graded Grade Compression: An Experimental, Graded Compression: An Experimental Study on the Pig Cauda Equina with Special Reference to Differences in Effects between Rapid and Slow Onset of Compression**
Kjell Olmarker, Björn Rydevik, and Sten Holm

574 **Pressure Increase in the Dorsal Root Ganglion following Mechanical Compression: Closed Compartment Syndrome in Nerve Roots**
Björn L. Rydevik, Robert R. Myers, and Henry C. Powell

577 **Bone Mineral Content, Gender, Body Posture, and Build in Relation to Back Pain in Middle Age**
Hans Bergenudd, Bo Nilsson, Alf Udén, and Sig Willner

580 **Measurement of Spinal Sagittal Configuration and Mobility with Debrunner's Kyphometer**
Gunner Öhlén, Erik Spangfort, and Claes Tingvall

584 **Variation in Lumber Sagittal Mobility with Low-Back Trouble**
A. K. Burton, K. M. Tillotson, and J. D. G. Troup

591 **Preoperative and Postoperative Instability in Lumbar Spinal stenosis**
Karl-Erik Johnsson, Inga Redlund-Johnell, Alf Udén, and Stig Willner

594 **The Role of External Spinal Skeletal Fixation in the Assessment of Low-Back Disorders**
S. I. Esses, D. J. Botsford, and J. P. Kostuik

602 **Cross Leg Pain and Trunk List**
B. Khuffash and R. W. Porter

604 **3D-Location of the L5-S1 Fulcrum in Relation to the Hip**
Gunnar Németh and Hans Ohlsén

606 **Prediction of the Compressive Strength of Human Lumbar Vertebrae**
P. Brinckmann, M. Biggeman, and D. Hilweg

611 **Torsional Stability of the Lumbosacral Junction: Significance of the Iliolumbar Ligament**
Daniel H. K. Chow, Keith D. K. Luk, John C. Y. Leong, and C. W. Woo

616 **Evaluation of Cervical Disc Degeneration with Ultralow Field MRI and Discography: An Experimental Study on Cadavers**
E. Viikari-Juntura, R. Raininko, T. Videman, and L. Porkka

620 **Back Pain after Harrington Rod Instrumentation for Idiopathic Scoliosis**
G. Fabry, J. Van Melkebeek, and E. Bockx

625 **An Analysis of the Effect of the Zielke Operation on S-Shaped Curves in Idiopathic Scoliosis: The Use of EVAs Showing that Correction of the Thoracic Curve Occurs in its Lower Part: Significance of the Thoracolumbar Spinal Segment**
A. S. Wojcik, J. K. Webb, and R. G. Burwell

632 **Segmental Spinal Instrumentation: A Study of the Mechanical Properties of Materials Used for Sublaminar Fixation**
R. J. Crawford, P. J. Sell, M. S. Ali, and John Dove

636 **The Biomechanical Effectiveness of the Boston Brace in the Management of Adolescent Idiopathic Scoliosis**
Andrew P. Chase, Dan L. Bader, and Gregory R. Houghton

643 **Briefly Noted: Paraganglioma of the Thoracic Spinal Cord with Cerebrospinal Fluid Metastasis**
Shlomi Constantini, Dov Soffer, Tali Siegel, and Mordechai N. Shalit

645 **Briefly Noted: Atypical Multivertebral Fraction Due to Hyperextension in an Adolescent Girl: A Case Report**
L. Ferrandez, J. Usabiaga, J. M. Curto, A. Alonso, and F. Martin

647 **Meetings of Interest for Spine Physicians and Surgeons**

JULY

651 **Scoliosis Research Society, 23rd Annual Meeting, Baltimore, Maryland, September 29–October 2, 1988**

652 **The Current Status of Scoliosis Screening in North America, 1986: Results of a Survey by Mailed Questionnaire**
Marc Asher, Gary B. Beringer, Janice Orrick, and Nancy Halverhout

663 **The Contribution of the Three Columns of the Spine to Rotational Stability: A Biomechanical Model**
Thomas R. Haher, William Felmy, Howard Baruch, Vincent Devlin, Daniel Welin, Michael O'Brien, Jameel Ahmad, Joseph Valenza, and Susan Parish

670 **The Effect of Magnetic Resonance Imaging on Metal Spine Implants**
Christopher J. Lyons, Randal R. Betz, Mamed Mesgarzadeh, George Revesz, Akbar Bonakdarpour, and Michael Clancy

673 **Effects of Spinal Cord Lesioning on Somatosensory and Neurogenic-Motor Evoked Potentials**
Jeffrey H. Owen, Arthur B. Jenny, Masatoshi Naito, Kristy Weber, Keith H. Bridwell, and Ronald McGhee

683 **Transcranial Magnetic Motor Evoked Potentials (tcMMEP) for Functional Monitoring of Motor Pathways during Scoliosis Surgery**
Harvey L. Edmonds, Jr., Markku P. J. Paloheimo, Marta H. Backman, John R. Johnson, Richard T. Holt, and Christopher B. Shields

687 **Compound Muscle Action Potentials and Spinal Evoked Potentials in Experimental Spine Maneuver**
Masafumi Machida, Stuart L. Weinstein, Yasuhide Imamura, Takeo Usui, Thoru Yamada, Jun Kimura, and Sadayoshi Toriyama

692 **Scoliosis Induced by Anterior and Posterior Rhizotomy**
S. I. Suk, H. S. Song, and C. K. Lee

698 **An Experimental Study on Spinal Cord Traction Syndrome**
Yasuhiro Fujita and Hiroshi Yamamoto

706 **Peak Skeletal Mass Asessment in Young Adults with Idiopathic Scoliosis**
Kostas P. Velis, John H. Healey, and Robert Schneider

712 **Anterior Extension of the Thoracic Vertebral Bodies in Scheuermann's Kyphosis: An Anatomic Study**
Benedict F. DiGiovanni, Peter V. Scoles, and Bruce M. Latimer

717 **Segmental Analysis of the Sagittal Plane Alignment of the Normal Thoracic and Lumbar Spines and Thoracolumbar Junction**
Mark Bernhardt and Keith H. Bridwell

722 **The Syndrome of Inappropriate Antidiuretic Hormone Secretion and Its Effect on Blood Indices following Spinal Fusion**
Richard J. Mason, Randal R. Betz, James P. Orlowski, and Gordon R. Bell

727 **Temporal Analysis of Vascularized and Nonvascularized Rib Grafts in Canine Spine Surgery**
John W. Shaffer, Dwight T. Davy, Gregory A. Field, and Jay S. Bensusan

733 **Frontal Plane and Sagittal Plane Balance following Cotrel-Dubousset Instrumentation for Idiopathic Scoliosis**
B. Stephens Richards, John G. Birch, John A. Herring, Charles E. Johnston, and James W. Roach

738 **Analysis of the Primary and Compensatory Curvatures following Zielke Instrumentation for Idiopathic Scoliosis**
Rolando M. Puno, John R. Johnson, Peter A. W. Ostermann, and Richard T. Holt

744 **Long-Term Results of Spinal Instrumentation Surgery for Scoliosis Five Years or More after Surgery, in Patients over Twenty-Three Years of Age**
Hiroshi Kitahara, Shun-Ichi Inoue, Shohei Minami, Keijiro Isobe, and Yoshinori Ohtsuka

750 **Spine Fusion in Cerebral Palsy with L-Rod Segmental Spinal Instrumentation: A Comparison of Single and Two-Stage Combined Approach with Zielke Instrumentation**
Susan M. Swank, Dan S. Cohen, and John C. Brown

760 **Spinal Muscular Atrophy: Natural History and Orthopaedic Treatment of Scoliosis**
Claudia Granata, Luciano Merlini, Elisabetta Magni, Marie L. Marini, and Silvia Bonfiglioli Stagni
763 **Surgical and Functional Results of Spine Fusion in Spinal Muscular Atrophy**
J. C. Brown, J. L. Zeller, S. M. Swank, J. Furumasu, and S. L. Warath
771 **Functional Activities in Spinal Muscular Atrophy Patients after Spinal Fusion**
Jan Furumasu, Susan M. Swank, John C. Brown, Irene Gilgoff, Sandra Warath, and John Zeller
776 **In Memoriam: Dr. David L. Filtzer**
Donlin M. Long
777 **Letters**
778 **Meetings of Interest for Spine Physicians and Surgeons**

AUGUST

781 **The Effect of Angled Insertion on Halo Pin Fixation**
Kevin J. Triggs, R. Tracy Ballock, Thay Q. Lee, Savio L-Y Woo, and Steven R. Garfin
784 **Bone Scintigraphy in Patients with Breast Cancer, Pulmonary Cancer, Uterine Cervix Cancer, and Prostatic Cancer: Statistical Study of Spinal Accumulation Cases**
Shinobu Morishita, Toshinobu Onomura, Takashi Inoue, Hiroko Maeda, and Hiroaki Akagi
790 **Variability of Somatosensory Cortical Evoked Potential Monitoring during Spinal Surgery**
John P. Lubicky, Joseph A. Spadaro, Hansen A. Yuan, Bruce E. Fredrickson, and Norma Henderson
799 **Significance of Acute Posttraumatic Bony Encroachment of the Neural Canal**
J. S. Keene, S. P. Fischer, R. Vanderby, Jr., D. S. Drummond, and P. A. Turski
803 **Fractures of the Spine in Ankylosing Spondylitis: Diagnosis, Treatment, and Complications**
Brent Graham and P. Kurt Van Peteghem
808 **Gunshot Wounds to the Spine Associated with a Perforated Viscus**
Raymond P. Roffi, Robert L. Waters, and Rodney H. Adkins
812 **Back Pain in Childhood**
P. G. Turner, J. H. Green, and C. S. B. Galasko
815 **Exploration of Mechanical and Electromyographic Responses of Trunk Muscles to High-Intensity Resistive Exercise**
Gary L. Smidt, Peter R. Blanpied, and Richard W. White
831 **Anomalous Lumbosacral Articulations and Low-Back Pain: Evaluation and Treatment**
Bo Jönsson, Björn Strömqvist, and Niels Egund
835 **The Role of Spinal Flexion and Extension in Changing Nerve Root Compression in Disc Herniations**
Brock E. Schnebel, Robert G. Watkins, and William Dillin
838 **Psychosocial Factors Influencing Outcome in Patients with Low-Back Pain**
P. W. H. Lee, S. P. Chow, F. Lieh-Mak, K. C. Chan, and S. Wong
844 **A Computer-Based Interview System for Patients with Back Pain: A Validation Study**
A. M. C. Thomas, J. C. T. Fairbank, P. B. Pynsent, and D. J. Baker
847 **Spinal Sagittal Configuration and Mobility Related to Low-Back Pain in the Female Gymnast**
Gunnar Öhlén, Torsten Wredmark, and Erik Spangfort
851 **Isometric Lifting Strength As a Predictor of Industrial Back Pain Reports**
Michele C. Batti'e, Stanley J. Bigos, Lloyd D. Fisher, Tommy H. Hansson, Marjorie E. Jones, and Mark D. Wortley
857 **EMG to Torque Relationship in Rectus Abdominis Muscle: Results with Repeated Testing**
Ian A. F. Stokes, Mary Moffroid, Stanley Rush, and Larry D. Haugh
862 **Electrophysiological Studies of Intermittent Claudication in Lumbar Stenosis**
Masaki Kondo, Hideo Matsuda, Shuji Kureya, and Akira Shimazu
867 **End-Plate Lesions of the Lumbar Spine**
K. D. McFadden and J. R. Taylor

870 **Surgical Treatment for Symptomatic Spinal Adhesive Arachnoiditis**
Jitsuhiko Shikata, Takao Yamamuro, Hirokazu Iida, and Masayuki Sugimoto

876 **Comparison of Disc Space Heights after Anterior Lumbar Interbody Fusion**
Steven Dennis, Robert Watkins, Stephen Landaker, William Dillin, and Donald Springer

879 **Placement of Transpedicular Vertebral Screws Close to Anterior Vertebral Cortex: Description of Methods**
M. H. Krag, M. E. Van Hal, and B. D. Beynnon

884 **Briefly Noted: Paresis of Proximal Lumbar Roots after Reduction of L5–S1 Spondylolisthesis**
Ensor E. Transfeldt, George K. Dendrinos, and David S. Bradford

888 **Briefly Noted: Vertebral Arch Hemangioma Producing Spinal Cord Compression in Pregnancy: Diagnosis by Magnetic Resonance Imaging**
David A. Schwartz, Somnath Nair, Beverly Hershey, A. Charles Winkelman, and Sydney D. Finkelstein

890 **Briefly Noted: Congenital Absence of a Lumbar Pedicle**
Masami Mizutani, Takao Yamamuro, and Jitsuhiko Shikata

892 **Briefly Noted: Infected Charcot Spine following Spinal Cord Injury**
Yoshihiro Mikawa, Ryo Watanabe, Yoshiki Yamano, and Shoji Morii

895 **Briefly Noted: Tethered Cord Syndrome in the Adult Postoperative Myelomeningocele Patient: A Case Report**
Sean R. Logan, Winfield S. Fisher, III, and Christopher M. Curcio

898 **Briefly Noted: Sequestrated Lumbar Intervertebral Disc Associated with Vertebral Erosion**
Carlos E. Briceno, Mahmood Fazl, Robert A. Willinsky, and Stanley Gertzbein

900 **Briefly Noted: Spontaneous Spinal Epidural Hematoma Complicating Paget's Disease of the Spine: Case Report**
Jeffrey W. Hanna, Marshall R. Ball, K. Stuart Lee, and J. M. McWhorter

903 **Meetings of Interest for Spine Physicians and Surgeons**

SEPTEMBER
EUROPEAN EDITION

907 **The 1989 Volvo Award Competition for Research in Low-Back Pain**

903 **1989 Volvo Award in Clinical Sciences: Reproducibility of Physical Signs in Low-Back Pain**
P. F. McCombe, J. C. T. Fairbank, B. C. Cockersole, and P. B. Pynsent

919 **1989 Volvo Award in Basic Science: Device-Related Osteoporosis with Spinal Instrumentation**
Paul C. McAfee, Ian D. Farey, Chet E. Sutterlin, Kevin R. Gurr, Karen E. Warden, and Bryan W. Cunningham

927 **1989 Volvo Award in Biomechanics: Mechanical Recruitment of Low-Back Muscles: Theoretical Predictions and Experimental Validation**
Zvi Ladin, Kurukundi R. Murthy, and Carlo J. De Luca

939 **Prediction of Low-Back Trouble Frequency in a Working Population**
A. K. Burton, K. M. Tillotson, and J. D. G. Troup

947 **The Effects of Compensation on Recovery from Low-Back Injury**
C. G. Greenough and R. D. Fraser

956 **A Psychosociomedical Prediction Model of Response to Treatment by Chronically Disabled Workers with Low-Back Pain**
Peter B. Polatin, Robert J. Gatchel, Dennis Barnes, Holly Mayer, Charles Arens, and Tom G. Mayer

962 **A Prospective, Randomized, Double-Blind Evaluation of Trigger-Point Injection Therapy for Low-Back Pain**
Timothy A. Garvey, Michael R. Marks, and Sam W. Wiesel

965 **Walking and Cycling Tests in Neurogenic and Intermittent Claudication**
GX Dong and R. W. Porter

970 **Isolated Spinous Process Deviation: A Pitfall in the Interpretation of AP Radiographs of the Lumbar Spine**
Jan P. J. Van Schaik, Henk Verbiest, and Frans D. J. Van Schaik

977 **The Prevalence of Disc Degeneration Associated with Neural Arch Defects of the Lumbar Spine Assessed by Magnetic Resonance Imaging**
E. P. Szypryt, P. Twining, R. C. Mulholland, and B. S. Worthington
982 **Magnetic Resonance Study of Disc Degeneration in Young Low-Back Pain Patients**
Hannu Paajanen, Minna Erkintalo, Timo Kuusela, Seppo Dahlstrom, and Martti Kormano
986 **Lumbar Myoelectric Spectral Analysis for Endurance Assessment: A Comparison of Normals with Deconditioned Patients**
Tom G. Mayer, George Kondraske, Vert Mooney, Timothy W. Carmichael, and Robert Butsch
992 **Lumbar Muscle Fatigue and Chronic Lower Back Pain**
Serge H. Roy, Carlo J. De Luca, and David A. Casavant
1002 **How Does Posture Affect Coupling in the Lumbar Spine?**
Manohar Panjabi, Isao Yamamoto, Thomas Oxland, and J. Crisco
1012 **Regional Variations in the Compressive Properties of Lumbar Vertebral Trabeculae: Effects of Disc Degeneration**
Tony S. Keller, Tommy H. Hansson, Adam C. Abram, Dan M. Spengler, and Manohar M. Panjabi
1020 **A Pathologic Study of Lumbar Disc Herniation in the Elderly**
Yoshiaki Harada and Sinnosuke Nakahara
1025 **Iatrogenic Discitis: The Role of Intravenous Antibiotics in Prevention and Treatment: An Experimental Study**
R. D. Fraser, O. L. Osti, and B. Vernon-Roberts
1033 **Transfusion-Related Non-A, Non-B Hepatitis in Elective Spine Deformity Surgery Patients in Gothenburg, Sweden**
Peter Landin and Alf Nachemson
1036 **Meetings of Interest for Spine Physicians and Surgeons**

OCTOBER

CERVICAL SPINE RESEARCH SOCIETY EDITION

1039 **Cervical Spine Research Society, Sixteenth Annual Meeting, Key Biscayne, Florida, November 30—December 3, 1988**
1040 **Clinical Biomechanics of Cervical Spine Implants**
Augustus A. White, III
1046 **Complications of Cervical Spine Surgery: A Five-Year Report on a Survey of the Membership of the Cervical Spine Research Society by the Morbidity and Mortality Committee**
Jacob J. Graham
1051 **Esophageal Perforation Following Anterior Cervical Spine Surgery**
Kenneth E. Newhouse, Ronald W. Lindsey, Charles R. Clark, Jonas Lieponis, and Michael J. Murphy
1054 **Natural History of Atlanto-Axial Subluxation in Rheumatoid Arthritis**
Nasim A. Rana
1057 **Functional Evaluation of the Spinal Cord by Magnetic Resonance Imaging in Patients with Rheumatoid Arthritis and Instability of Upper Cervical Spine**
J. Dvorak, D. Grob, H. Baumgartner, N. Gschwend, W. Grauer, and S. Larsson
1065 **Fractures of the Odontoid Process: Treatment with Anterior Screw Fixation**
Max Aebi, Christian Etter, and Michael Coscia
1071 **Metastatic Lesions of the Upper Cervical Spine**
Eric Phillips and Alan M. Levine
1078 **Motor Evoked Potential Monitoring during Upper Cervical Spine Surgery**
Hideki Kitagawa, Tatsuo Itoh, Haruo Takano, Kazuhiko Takakuwa, Naoya Yamamoto, Hitoshi Yamada, and Haruo Tsuji
1084 **Acute Ascending Myelopathy of the Spine**
Isadore G. Yablon, Joe Ordia, Ronald Mortara, James Reed, and Edward Spatz
1090 **Magnetic Resonance Imaging of Acute Cervical Spine Trauma: Correlation with Severity of Neurologic Injury**
Dale M. Schaefer, Adam Flanders, Bruce E. Northrup, H. T. Doan, and Jewell L. Osterholm
1096 **Clinical Considerations and Biochemical Basis of Prognosis of Cervical Spinal Cord Injury**
Takaaki Ikata, Kenichi Iwasa, Kuniaki Morimoto, Takeharu Tonai, and Yuji Taoka

1102 **Dynamic Response of Human Cervical Spine Ligaments**
Narayan Yoganandan, Frank Pintar, James Butler, John Reinartz, Anthony Sances, Jr., and Sanford J. Larson

1111 **Multidirectional Instabilities of Traumatic Cervical Spine Injuries in a Porcine Model**
M. M. Panjabi, J. S. Duranceau, T. R. Oxland, and C. E. Bowen

1116 **Kinematics of the Cervical Spine Following Discectomy and Stabilization**
Kary Schulte, Charles R. Clark, and Vijay K. Goel

1122 **Biomechanical Evaluation of Cervical Spinal Stabilization Methods in a Human Cadaveric Model**
Jeffrey D. Coe, Karen E. Warden, Chester E. Sutterlin, III, and Paul C. McAfee

1132 **Meetings of Interest for Spine Physicians and Surgeons**

NOVEMBER
JAPANESE EDITION

1135 **Three-Dimensional Motion Analysis of the Cervical Spine with Special Reference to the Axial Rotation**
Masaya Mimura, Hideshige Moriya, Tsuneo Watanabe, Kazuhisa Takahashi, Masatsune Yamagata, and Tamotsu Tamaki

1140 **Numerical Evaluation of Symptoms in Cervical Myelopathy by Quantification Theory III (Hayashi)**
Kiyoshi Ikeda, Eiji Wada, and Hideo Hosoe

1144 **Magnetic Resonance Imaging of Upper Cervical Disorders in Rheumatoid Arthritis**
Hidefumi Kawaida, Takashi Sakou, Yoshiyuki Morizono, and Nagatoshi Yoshikuni

1149 **Follow-up Study of Atlanto-axial Instability in Down's Syndrome without Separate Odontoid Process**
Toshikazu Ohsawa, Toshiro Izawa, Yoshikazu Kuroki, and Katsuhiro Ohnari

1154 **Unstable Cervical Spine in Athetoid Cerebral Palsy**
Sohei Ebara, Takeo Harada, Yuji Yamazaki, Noboru Hosono, Kazuo Yonenobu, Kazuo Hiroshima, and Keiro Ono

1160 **Posterior Extensive Simultaneous Multisegment Decompression with Posterolateral Fusion for Cervical Myelopathy with Cervical Instability and Kyphotic and/or S-shaped Deformities**
Kazumi Miyazaki, Kenji Tada, Yasutaka Matsuda, Masao Okuno, Tadashi Yasuda, and Hitoshi Murakami

1171 **Analysis of Cervical Instability Resulting from Laminectomies for Removal of Spinal Cord Tumor**
Yutaka Katsumi, Takao Honma, and Takahiko Nakamura

1177 **Postoperative Instability of Cervical OPLL and Cervical Radiculomyelopathy**
Yoshihiko Kamioka, Hiroshi Yamamoto, Toshikazu Tani, Kenji Ishida, and Takeshi Sawamoto

1184 **Genetic Studies on Ossification of the Posterior Longitudinal Ligament of the Spine**
K. T. Terayama

1192 **Significance of Intraoperative Ultrasonography in Anterior Spinal Operation**
Kenji Yamaoka

1198 **Dome-like Expansive Laminoplasty for the Second Cervical Vertebra**
Hiromi Matsuzaki, Masahiro Hoshino, Tetsuya Kiuchi, and Sadayoshi Toriyama

1204 **Mandible and Tongue-Splitting Approach for Giant Cell Tumor of Axis**
Genki Honma, Kagehisa Murota, Ritsu Shiba, and Hidemaru Kondo

1211 **Clinical Study of Dissociated Motor Weakness following Anterior Cervical Decompression Surgery**
Kenichi Shinomiya, Yoshiroh Kurosa, Michiyuki Fuchioka, and Kohtaro Furuya

1215 **An Experimental Study of Spinal Cord Evoked Potentials and Histologic Changes following Spinal Cord Heating**
Seiji Uchiyama, Kouzou Yashiro, Hideaki Takahashi, and Takao Homma

1220 **Effects of Compression on Intraradicular Blood Flow in Dogs**
Hidezo Yoshizawa, Shigeru Kobayashi, and Kenki Kubota

1226 **Water, Fixed Charge Density, Protein Contents, and Lysine Incorporation into Protein in Chymopapain-Digested Intervertebral Disc of Rabbit**
Satoru Kitano, Haruo Tsuji, Norikazu Hirano, Akimi Sano, and Nobuo Terahata

1234 **Water Diffusion Pathway, Swelling Pressure, and Biomechanical Properties of the Intervertebral Disc during Compression Load**
Hiroshi Ohshima, Haruo Tsuji, Norikazu Hirano, Hirokazu Ishihara, Yoshiharu Katoh and Hitoshi Yamada

1245 **Histopathologic Study on Tumor Infiltration into the Intervertebral Disc**
Tsuguo Yasuma, Yasuo Yamauchi, Kouichi Arai, and Eisei Makino

1249 **Biomechanical Evaluation of Spinal Fixation Devices: Part III. Stability Provided by Six Spinal Fixation Devices and Interbody Bone Graft**
Kuniyoshi Abumi, Manohar M. Panjabi, and Joanne Duranceau

1256 **Three-Dimensional Movements of the Whole Lumbar Spine Lumbosacral Joint**
Isao Yamamoto, Manohar M. Panjabi, Trey Crisco, and Tom Oxland

1261 **Classification by Position of Dorsal Root Ganglia in the Lumbosacral Region**
Mitsuo Hasue, Junichi Kunogi, Shinichi Konno, and Shinichi Kikuchi

1265 **The Configuration of the Laminas and Facet Joints in Degenerative Spondylolisthesis: A Clinicoradiologic Study**
Kozo Sato, Eikichi Wakamatsu, Atsuro Yoshizumi, Nikichi Watanabe, and Osamu Irei

1272 **Letters**

1274 **Meetings of Interest for Spine Physicians and Surgeons**

DECEMBER

1277 **Traumatic Cervical Spine Injuries in Childhood and Adolescence**
Timothy J. Birney, and Edward N. Hanley, Jr.

1283 **Trunk Muscle Activities in Braced Scoliosis Patients**
George T. Wynarsky, and Albert B. Schultz

1287 **The Idiopathic Double Thoracic Curve Pattern: Its Recognition and Surgical Management**
Robert B. Winter

1293 **Lateral Electrical Surface Stimulation in Idiopathic Scoliosis: Experience in Two Private Practices**
Susan M. Swank, John Carlisle Brown, Mary V. Jennings, and Chris Conradi

1296 **Decreasing Homologous Blood Transfusion in Spinal Surgery by Use of the Cell Saver and Predeposited Blood**
David C. Mann, Marianne R. Wilham, Eleanor M. Brower, and Clyde L. Nash, Jr.

1301 **Unit Rod Segmental Spinal Instrumentation in the Management of Patients with Progressive Neuromuscular Spinal Deformity**
D. F. Bell, C. F. Moseley, and J. Koreska

1308 **Experimental Analysis of the Spinal Cord Compressed by Spinal Metastasis**
Shohei Manabe, Hiromitsu Tanaka, Yoshio Higo, Pyoyun Park, Tohgo Ohno, and Akio Tateishi

1316 **Burst Fractures in the Thoracic and Lumbar Spine: A Clinico-neuropathologic Analysis**
Jan A. G. Willen, Uttam H. Gaekwad, and Byron A. Kakulas

1324 **Harvesting Autogenous Iliac Bone Grafts: A Review of Complications and Techniques**
Lawrence T. Kurz, Steven R. Garfin, and Robert E. Booth, Jr.

1332 **The Long-Range Prognosis of Arachnoiditis**
David W. Guyer, Leon L. Wiltse, Marjorie L. Eskay, and Betsy H. Guyer

1342 **Postoperative Radiographic Evidence for Fatigue Fracture as the Etiology in Spondylolysis**
Daniel B. O'Neill, and Lyle J. Micheli

1356 **The Neuroradiographic Diagnosis of Lumbar Herniated Nucleus Pulposus (I): A Comparison of Computed Tomography, Myelography, CT-Myelography, Discography, and CT-Discography**
Roger P. Jackson, Gerald J. Becker, Rae R. Jacobs, Pasquale X. Montesano, Barry R. Cooper, and Gerald E. McManus

1362 **The Neuroradiographic Diagnosis of Lumbar Herniated Nucleus Pulposus (II): A Comparison of Computed Tomography, Myelography, CT-Myelography, and Magnetic Resonance Imaging**
Roger P. Jackson, James E. Cain, Jr., Rae R. Jacobs, Barry R. Cooper, and Gerald E. McManus

1368 **Discography and Magnetic Resonance Imaging in the Diagnosis of Lumbar Disc Disruption**
Markus Kornberg

1373 **Bertolotti's Syndrome Revisited: Transitional Vertebrae of the Lumbar Spine**
Allen D. Elster

1378 **Lumbar Intraspinal Synovial Cysts: Recognition and CT Diagnosis**
Wayne Lemish, Trevor Apsimon, and Turab Chakera

1384 **Research Perspectives in Low-Back Pain: Report of a 1988 Workshop**
John W. Frymoyer, and Stephen L. Gordon

1391 **Coronal and Sagittal Plane Spinal Deformities Correlating with Back Pain and Pulmonary Function in Adult Idiopathic Scoliosis**
Roger P. Jackson, Edward H. Simmons, and Daniel Stripinis

1398 **Biomechanical Analysis of Pedicle Screw Instrumentation Systems in a Corpectomy Model**
Richard B. Ashman, Robert D. Galpin, James D. Corin, and Charles E. Johnston, II

1406 **Editorial: Congenital Spine Deformity: What's the Latest and What's the Best?**
R. B. Winter

1410 **Briefly Noted: Ossification of the Posterior Longitudinal Ligament and Thoracic Myelopathy in a Short-Limbed Dwarf**
George M. Gabuzda, Vithal Wagle, Kevin J. Kiwak, and Jonathan Kramer

1412 **Briefly Noted: Intradural Rupture of Cervical Intervertebral Disc**
Shih-Tseng Lee, Shaw-Yi Cheng, and Tai-Ngar Lui

1415 **Briefly Noted: Spinal Subdural Empyema Complicating Cervical Discography**
Stephen P. Lownie, and Gary G. Ferguson

1418 **Briefly Noted: Intrasacral Meningocele: Case Report and Review of the Literature**
Geoffrey Philip Cole, Ann Marie Flannery, and Adarsh K. Gulati

1421 **Briefly Noted: Cervical Pneumomyelogram Secondary to a Closed Fracture—Dislocation of the Thoracic Spine: A Case Report**
Rick B. Delamarter, John Heller, and Henry H. Bohlman

1423 **Meetings of Interest for Spine Physicians and Surgeons**

1425 **Index**

STATEMENT OF OWNERSHIP, MANAGEMENT AND CIRCULATION (Act of August 12, 1970: Section 3685, Title 39 United States Code) Date of Filing—October 1, 1989. Title of Publication—SPINE; Frequency of Issue—Monthly; Annual Subscription Price—$105.00; Location of Known Office of Publication—Downsville Pike, Rt. 3, Box 20-B, Hagerstown, MD 21740; Location of Headquarters or General Business Offices of the Publisher—East Washington Square, Philadelphia, PA 19105; Publisher—J. B. Lippincott Company, East Washington Square, Philadelphia, PA 19105; Editor—Henry LaRocca, M.D., 4938 Prytania Street, New Orleans, LA 70115; Managing Editor—Lisa Marshall, East Washington Square, Philadelphia, PA 19105; Owner—J. B. Lippincott Company, East Washington Square, Philadelphia, PA 19105; Known Bondholders, Mortgagees, and other security holders owning or holding 1 percent or more of total amount of bonds, mortgages, or other securities—Harper & Row Publishers, Inc., 10 East 53rd Street, New York, NY 10022; A. Total no. copies printed (*net press run*), average 9758, actual 10000; B. Paid circulation 1. Sales through dealers and carriers, street vendors and counter sales, average—; actual—; 2. Mail subscriptions, average 9015, actual 8863; C. Total paid circulation, average 9015, actual 8863; D. Free distribution by mail, carrier or other means. Samples complimentary, and other free copies, average 267, actual 298; E. Total distribution (*sum of C and D*), average 9282, actual 9161; F. Copies not distributed 1. Office use, leftover, unaccounted, spoiled after printing, average 476, actual 839, 2. Returns from new agents,—; G. Total (*sum of E & F—should equal net press run shown in A*), average 9758, actual 10000. I certify that the statements made by me above are correct and complete. Joseph W. Lippincott, III, *Publisher*.